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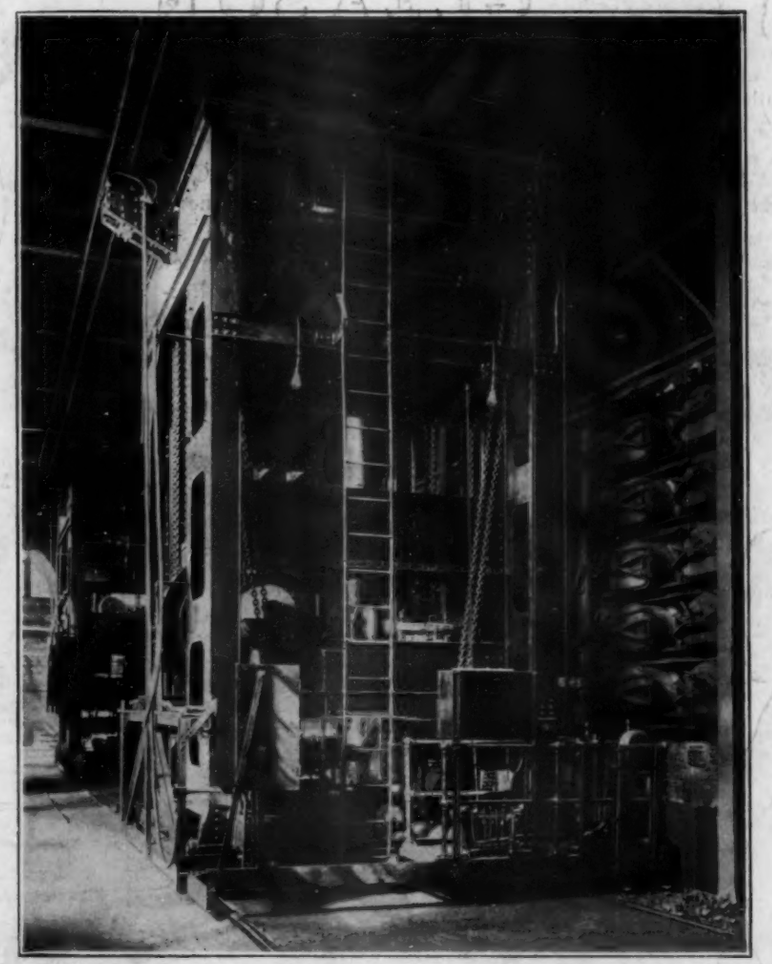

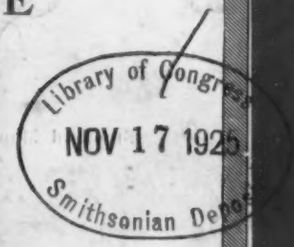

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Index to Contents, Page 4

Advertising Index, Page 33

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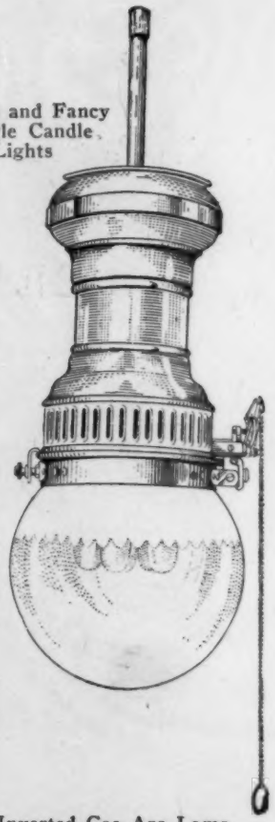

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SIXTY-SEVENTH YEAR

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Contents of This Issue

Proper Publicity Essential to Progress—H. C. Abell 544
An Opportunity for Gas—Philip Cabot 545
Gas in State Exhibition—W. B. Stoddard 546
Ideas for the Man Who Sells—William H. Matlack 548
As the Journal Views It 549
The Appearance of the Gas Plant
Some Selling Pointers on House Heating—James W. Howard . 550
Industrial Gas Lesson No. 94 551
Gas Wrinkles 552
Progress in Gas Technology 553
Market Outlook Favorable—L. W. Alwyn-Schmidt 558
Three Essentials of Salesmanship—Elizabeth MacDonald 560
News of the Gas Industry 561

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Proper Publicity Essential to Progress*

The intrinsic purpose of utility information work discussed at first national conference

H. C. Abell

President, American Gas Association

A COMPETITIVE commercial business must of necessity cater to its patrons, the purchasers and users of its product, either directly or indirectly through its distributors.

It must keep abreast of the times. Its product must always be up-to-date and competitively right, and must be produced at a proper cost. In other words, the product and service must be fully sufficient and the undertaking must at all times have facilities to provide the product and service.

Peculiarities of the Public Utility

Many of the same commercial problems confront a public utility, except that its problems are more complicated, because it is no longer considered a free agent to conduct its affairs as the management may see fit and charge as much as the traffic will bear. It also differs from any other commercial undertaking in that it is permanently located in one community, and cannot move away, but must submit to and be a part of all the community's political and industrial life, with the further thought and belief on the part of the people that a utility is generally considered a monopoly and therefore cannot be treated as an average commercial industry. It is not a monopoly, however, because all utilities are subjected to some competition from other sources, and in addition, practically all utilities are regulated by some governmental body and a regulated business cannot therefore qualify under the definition of a monopoly.

A commercial undertaking, either a manufacturing enterprise or any other, must charge sufficient for its product to meet all its expenses, including proper reserves for patent lapses, renewals and replacements, taxes, depletion, etc., and in addition the receipts must be adequate to pay capital, used in the business, for its hire and to insure its safety. The above is necessary in order to provide sufficient inducement for additional capital to flow freely into the undertaking with which to provide added facilities due to any enlargement of the business.

Necessary Requirements for Success

Any commercial undertaking to be successful must of necessity meet the following requirements:

1. It must furnish a product that is in demand and is of service.
2. If it is a usable product, such as an automobile, it must insure proper service in competition with others.
3. It cannot lie dormant; it must grow and develop in proportion to its demands and it must improve its product to meet the ever-increasing demands of service.
4. It must charge a price for its product to meet all its obligations as previously stated.
5. It must enjoy the confidence of its patrons, who are its best advertising agents and who consequently influence the development of its business.
6. Complete satisfaction of the foregoing will unquestionably permit the industry to conduct a profitable business and will induce capital to invest in its extensions and betterments.

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*Delivered at the National Conference on Information Committee Work, 1925 A. G. A. Convention, Atlantic City, N. J., Oct. 15, 1925.

New Capital Attracted

In many commercial undertakings the additional capital necessary for development comes from the profits, obtained through the sale of its product over and above all expenses, including the wages for the money which is hired. Many businesses turn their capital over several times in a year, which makes it possible to finance out of the profits of the business itself.

As an illustration, an example may be considered of a large department store, which turns its capital over from four to six times per year or more. Let it be assumed that it earns 6 per cent at each turnover. The minimum net earnings would then be 24 per cent on the invested capital for the year, and might be much more than that. If the money invested cost 10 per cent, then a surplus of 14 per cent on the capital used in the business could be invested in increased facilities.

A patron or user of a product is influenced by the price which he is made to pay and the kind of service which is rendered to him. In order that a patron or prospective patron or user may be satisfactorily influenced, the worth of the product and the service rendered or to be rendered must be comparable with other like products and service.

H. C. Abell, President American Gas Association

Salesmen, Advertising and Follow-Up

In commercial business this is accomplished through salesmen, advertising, follow-up, and making the customer feel that his purchases are appreciated and that the commercial enterprise is a real human entity interested in him and in rendering him a real and satisfactory service, and to him personally.

A commercial undertaking is only interested in its patrons and its prospects and is not under the surveillance of an ambitious, aspiring and sometimes more or less unscrupulous politician, as is a public utility.

The investor and the public are constantly in touch with commercial enterprises of many kinds, and know more or less about them. They come in contact with the grocer, the salesmen for various household articles, etc., etc. I am therefore convinced that a comparison of a commercial undertaking with a public utility, not necessarily jotted down in parallel columns, would acquaint the same public with an understanding and a better knowledge of public utility matters.

Public Kept Uninformed in Past

In the past the public utility business was considered as a private commercial undertaking and the public was kept uninformed. Consequently, it was an easy matter for a political aspirant to misinform the public and bring a public utility undertaking into disfavor and then to use the prejudice engendered to further his own interest. Such situations, unfortunately exist too frequently with the consequent effect of increasing the instability of the public utility undertaking, frequently inculcating fear in the investors, and all ultimately working a hardship on the whole community.

A public utility cannot finance extensions, etc., out of surplus net earnings because its investment is so large in proportion to the annual business which it does. It can only turn its capital over once in about four years. If it were permitted to earn about 8 per cent after it had met all its operating obligations with which to pay for its hire of money, then no surplus or practically no surplus would remain, it, therefore, becomes self-evident that money for new extensions and betterments must come from the investor.

Comparison Between Public Utility and Commercial Enterprise

A public utility can be compared to a successful commercial undertaking as follows:

1. A public utility always furnishes a service which is in demand and is an absolute necessity to insure the growth of the community.

(Continued on page 554)

An Opportunity for Gas*

Hard coal situation leading to use of gaseous fuel

Philip Cabot

BIENNIALLY, if not annually, labor and capital in the coal industry lay down pick and pen and fly at each others' throats. Were it not for the damage to innocent bystanders, we might be willing to tolerate these exhibitions of barbarism in the hope that the combatants would learn by experience. But 20 years or more have passed without the smallest evidence that any lesson has been learned, and meantime both householder and manufacturer have suffered severely.

Public Losing Patience

The time is not distant, however, when the patience of the public will run out. The householder has suffered about as much as he will stand and he will readily give ear to any constructive suggestion that is presented to him. In all the welter of speechifying and reporting this much is clear: Anthracite coal can no longer remain the mainstay of the New England household. Even if the supply were continuous, it is insufficient. The output of the mines has remained stationary for many years, in the face of a growing population dependent upon it, and during the last 10 years the price has nearly doubled, adding something like $40,000,000 a year to the New Englander's domestic fuel bill. In these days of our prosperity, that may seem a trivial sum, but the day is at hand when, as we count our pennies, it will look larger to us.

Some Other Forces of Heat Required

Clearly within the next 10 years we must replace a large fraction of our present anthracite coal supply with some other form of heat. The effect of such a change will be two-fold. Sooner or later we must learn to manage without anthracite, and the sooner we begin to experiment with other fuels the better. Better still, competition will be introduced into an industry where monopoly is threatened. Both mine owners and miners are compactly organized, and are tempted to abuse their power, but they show great sensitiveness to the risk of competition. Even the feeble efforts already made to escape from their grip have startled them, and slightly loosened it.

Soft Coal and Fuel Oil Not Satisfactory

Bituminous coal and fuel oil are the most obvious substitutes, but neither will prove satisfying. Bituminous coal in its raw state is not a good household pet on account of its dirty habits. London and Pittsburgh show what happens when you take that road. Fuel oil has during the last few years promised an avenue of escape, but at best this can be only temporary. The demand for gasoline for transportation purposes has already raised the price of fuel oil, and it has thrown such a burden upon our domestic oil resources as to threaten their exhaustion in a relatively short time. Fuel oil may prove a temporary alleviation for our troubles, but it is not a permanent cure.

We must look elsewhere. What we required is an assured supply of domestic fuel, and an effective method of price regulation. Bituminous coal is the only heat-producing material of which we have an adequate supply to provide for a long future. Our anthracite coal and fuel oil supplies are both limited, and bituminous coal burned raw in a kitchen range, house heater, or even in small industrial power plants is an intolerable nuisance, besides being mostly wasted. Only a small fraction of its heating value can be made serviceable by these devices.

An Opportunity for Gas

The bituminous coal industry has been demoralized by cut-throat competition among small producers. If this condition is not remedied by the present mining companies, the great power companies can take it in hand. Cannot some similar solution be found for our domestic heating problem? The gas companies occupy in the domestic heating field the same relative position as the electric companies in power and lighting. Cannot some help be obtained from them? It may be that the companies have been slow to see the full measure of their opportunities in the past, but if the opportunity for great public service is before them they are now prepared to grasp it. Look for yourself at the present position of the gas industry in New England.

We are all familiar with the astounding developments in electrical science, and the end is not yet, but the economic changes in this country during the last 20 years have opened before the men in the gas industry an opportunity which is even more impressive.

Gas Supreme as Heating Fuel

The production and distribution of gas for illuminating purposes passed over the industrial horizon a generation ago and for more than 20 years the gas companies have been manufacturers and merchants, not primarily of light, but of heat. While gas can be used to produce both light and power, it cannot compete with electricity in either field, but in the field of heating it is supreme, and if the present opportunities be clearly seen and boldly grasped it will long be the master there. The last 20 years have produced great changes in the problem of the domestic heating through the country, but in New England they are particularly marked, so that I confine myself for the present to that section.

On the side of the householder, when anthracite coal was as cheap as dirt, it naturally became the

*From the World's Work.

(Continued on page 559)

Gas in a State Exhibition

Gas company's exhibit depicts conveniences of gaseous fuel

W. B. Stoddard

DURING the week of October 10 there was held at the Furniture Mart, Chicago, an exhibition of widespread interest, not merely to citizens of the great Commonwealth of Illinois—the Illinois Products Exposition. In the front ranks of progressive exhibitors, as usual, was the Peoples Gas Light and Coke Co. Pictures tell a story more vividly than words, and their eight small stages, showing contrasts between the world of 50 years ago and 1925 had always in front of them throngs of interested spectators. The settings of the four old-time scenes took back to their youth hundreds of prosperous business men and women of today and enabled the youngsters of this generation to realize how wonderful are the scores of conveniences that they commonly take for granted.

The Basement

Starting very properly with the basement, the first little stage showed one of the ancient variety, when furnaces were just being introduced. This was well captioned:

THE OLD-FASHIONED BASEMENT

What a dreary place it was—occupying practically one-third of the available floor space of the house—abandoned to coal storage and dirt, with big spider webs in the corners.

Beside it was pictured the basement with the gas-fired furnace, the larger portion of the floor being occupied by recreation rooms:

THE GAS FURNACE

makes it possible to turn the basement into the jolliest room in the house. The up-to-date architect who puts in a gas-fired furnace turns the basement into a Joy Cave. Here the young folks can romp and dance, play billiards or hold club meetings.

The Old and the New Kitchen

The fallacy of harping on "the good old times" was well brought out by comparing the kitchen-dining room of the house of 50 years ago with that of today. As the card said:

"The good old times" ought to be referred to as "the Chore Age." The wood box, coal bin and ash pan all made work for the man, and dirt for the woman of the house. What would grandmother have said if she could have seen all the conveniences of the modern kitchen.

The light and sanitary modern kitchen, with its white enamel furniture, its gas range and refrigerator, modern cooking utensils and labor-saving cooking devices, was shown, the card suggesting:

THE MODERN KITCHEN

has the convenience of gas, always ready for a big bake, or a short broil, and hot water in abundance day and night at your hand at the turn of a tap. How grandmother would have rejoiced could she have had half of it.

The Parlor and the Living Room

In 1875 "parlors" were in vogue—ornate affairs, but not half so comfortable as the modern living room. One of the old-time parlors was pictured, with its coal stove, whatnot, coal oil lamp and two figures toasting their feet on the fender. In striking contrast was the modern living room—which was shown as an alcove, with a girl seated at the piano. Down front was a gas-fired furnace, keeping the rooms at an even heat. The card explained:

PARLOR vs. LIVING ROOM

There was homeliness, but was there comfort? The parlor was a place to be used only on state occasions. Today we have living rooms and no parlors. The 1925 living room, where the family can meet in daily comfort, where the radio, piano, phonograph and lots of books and magazines make living pleasant. In a gas-heated home no one's comfort is disturbed by the thought that the furnace must be looked after from time to time.

The Old and the New Forge

Not only in the home, but in business, has gas wielded an immense power for good. The last two miniature stages depicted the forge of 50 years ago and that of today. True, some may regret the passing of the "village smithy" famed in song and story—and the old-time forge was presented in a very picturesque manner, with a prancing horse, and the smith, and the gleaming fires—but, as the card informed the audience:

"UNDER THE SPREADING CHESTNUT TREE"

The village smith, celebrated in song and story, has passed away. The auto has left the horse far behind, and the Modern Forge Shop now occupies the place where the smithy once stood—the modern forge shop serving hundreds of people where the smith could attend to the wants of only a few. The modern forge shop uses gas for heating—giving a clean fuel and easily controlled heat.

The Illinois Power and Light Exhibit

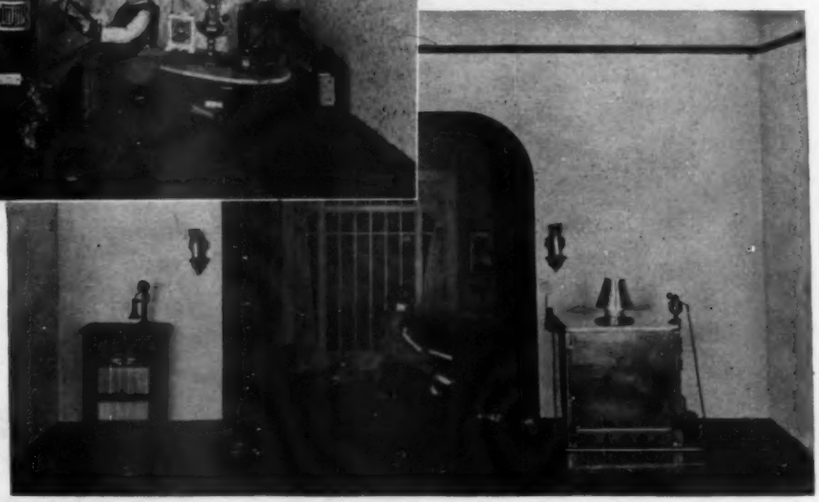
The Illinois Power and Light Corporation had a very interesting exhibit—a large map showing its plants in the various cities, as well as their railroad connecting a number of the largest cities in central Illinois. Fifty-six years ago the services of the Illinois Power and Light Corporation were intro-

(Continued on page 555)

"Under the Spreading Chestnut Tree"—The village smith as he ran his forge before the advent of the automobile

The Modern Smith in a forge shop where gas is the fuel

The Old Fashioned Parlor, with its chores. "The Chore Age"



Gas the Modernizer in the Modern Parlor, with all its comforts and conveniences.

How Gas Has Changed Conditions Aptly Told in Comparative Symbolic Scenes

GAS MERCHANDISING

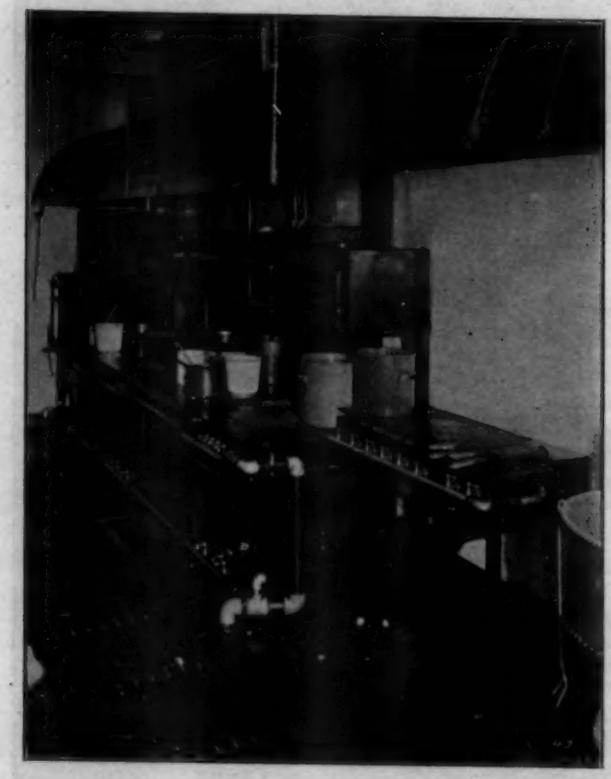
Domestic ~ Industrial

Ideas for the Man Who Sells

William H. Matlack

HELPS IN HOTEL SELLING

WHEN you uncover a prospect for hotel equipment, write the manufacturer whose equipment you expect to sell your prospect for pictures of installations of his equipment. Be sure that you tell him to give you the names of the institution in which the equipment is installed. When you get these photographs you can approach your prospective customer loaded with facts, figures and photographs. You will gain his attention immediately and arouse his interest, and there is a probability that you can increase the size of his order. Your prospect, upon examining the photographs, may decide to install additional units or to replace antiquated units with more up-to-date ones. Pictures often suggest more efficient arrangements which in turn call for new equipment. By all means include a few photographs in your kit when you approach a hotel or restaurant prospect, for they are a mighty help in hotel selling of gas equipment.



OVER-DRESSED

OVER-DRESSED windows are almost as bad as windows not dressed. This is especially true in connection with the display of gas appliances. When displaying a range, space heater, water heater or industrial appliance, display but one article and surround that one by as artistic a background as is possible. When displaying industrial appliances, display them in an atmosphere of industry or in connection with the products for which they are used. If a big lead pot has been ordered for your local newspaper, display the pot with some of the type metal, a matrix, and a few of the casts. Go to the business manager of the newspaper, tell him what you want to do and he will furnish you with metal, matrix, cast and a newspaper showing the finished work made possible by gas service. Windows of this kind always attract attention!

As The Journal Views It

THE APPEARANCE OF THE GAS PLANT

It is only within recent years that gas men have been giving any attention at all to the appearance of the gas plant. In the early days of the gas industry and during the period of its rapid development and growth, gas men were far too much occupied with matters that required constant and instant attention to spend any time at all in trying to improve the appearance of the gas works. In fact, it is only within the past three or four years that any real constructive study of this matter has been made by gas companies.

Even at the present time it is not at all commonly agreed that there is anything to be gained by improving the looks of the gas plant or of the gas holder. Every now and then opposition creeps up in a locality against the erection of a holder and the main argument is that such an ugly piece of structure tends to reduce the value of property in the neighborhood in which it is erected. Of course, there is absolutely no justification for this opposition because holders, as all gas men know, are not erected as a pastime by the gas company, but entirely because they are necessary to provide a proper service for the community which may be the very objector to it.

However, it is a fact that much can be done to improve the outward appearance of both the gas works and that most striking part of the gas equipment, the gas holder. It is true that the average gas man would consider this matter of gas plant aesthetics of very little importance. It is a small problem compared with the big issues that are agitating the minds of the gas men today. Consequently, it is not at all unexpected that it has been practically entirely overlooked. Very few papers have been read on the subject and very few gas men have really given it any real constructive thought.

However, certain changes have been taking place in the financial character of the gas company which may well make it obligatory upon the gas company to pay a little more attention to the appearance of its plant. The gas utility has acquired a large number of customer owners, and these owners are certainly going to visit the gas works, and when they come to the works to look over the property in which they have invested they certainly will not be impressed by a poorly kept plant. It will certainly not give them a more favorable opinion as to the value of the gas company securities, and the safety of their dividends, if they see a plant which shows outward signs of neglect, even though these are merely superficial marks and not at all indicative of poor efficiency in plant management and operation However, it could not be expected that the average customer owner will delve more deeply into the subject, but the appearance of the plant will be enough for him to determine that the particular gas securities that he may possess are not as secure as he thought.

It must not be thought for a moment that this is written in criticism of the gas companies or of the gas men. They have had very much more to do within the past five years than they could possibly attend to properly. However, whenever the chance is presented, they should try to clean up the plant and make it as attractive as possible. This is good business and will undoubtedly redound to the advantage of the gas company. It should be remembered that an electric power station has a much easier task to maintain a clean and efficient-looking appearance. The gas company must compete with the electric company in certain fields and it would certainly add materially to the success of gas if the gas plant's appearance could be compared with that of the electrical plant's appearance.

The attention of the gas company is directed particularly to this matter. It is impressed upon them that, just as the clothes make the man, so the outward appearance of the plant has a great deal to do with impressing upon the minds of the visitor that here is a company that is efficiently and properly managed. It is merely the old human trait of judging things from the surface, and while, as we all know, an entirely different situation might be disclosed upon closer examination, still it pays even for the most efficient and prosperous enterprise to present an attractive outward appearance.

Some Selling Pointers on House Heating*

How to approach and sell the house heating prospect and calculate his gas consumption

James W. Howard

Blackstone Valley Gas & Electric Co., Pawtucket, R. I., President of Industrial Gas Association of New England

COMPETITION is commonly recognized as a necessary nuisance encountered in any selling field, and in connection with the effect of the oil burner on the sale of gas for house heating, one can hardly find complete consolation in the adage, "Competition stimulates trade." Let us not draw any hurried conclusions! What is the effect of the oil burner on the sale of gas for house heating? Well, what is it? The answer is to be found in the experience of any gas company, more especially in the experience of any gas company which goes after the house heating business.

General Familiarity with Oil

The use of oil for heating houses by means of a special, expensive and not wholly satisfactory burner, installed in the central heater, is not a new thing, by any means. Everybody knows about it, and, thanks to the activity of the oil heating salesmen, every householder has considered it for his own house. The result has been that all people are interested in any device which will save them the much advertised inconveniences and annoyances of the coal fire.

Result of Oil Propaganda

The oil man has, then, through much conscientious effort, caused the coal-heated-house-holder to be righteously disgruntled with his heating equipment. We cannot justly say, therefore, that the oil burner offers competition when in reality it has stimulated the prospect to thoughts of a fuel more convenient than coal.

To answer our question as to the effect of the oil burner on the sale of gas for house heating: every gas company has had at least one inquiry for a "burner" to be placed in the present central heater, an inquiry entirely unsolicited or advertised for, and with some companies, no doubt, unwelcomed. The company which does not welcome such inquiries might well make a study of the situation along the lines as outlined in a paper, "House Heating and Its Problems," presented by the writer at the 1925 convention of the New England Association of Gas Engineers, and afterward published in the Gas Age-Record, page 515 of the April 11, 1925, house heating number.

*Prize winning paper in the House Heating Contest of the New England Gas Sales Association.

Heating Engineers vs. Salesmen

There are, indeed, cases where the oil man directly and specifically aims to undo the efforts of the gas man, but like the Ford jokes, "Every knock is a boost." This is particularly true in our case, because no oil man ever claimed a fault against gas which could be proved to have any ground in fact.

Having thus convinced ourselves that the influence of oil propaganda is anything but harmful, we can with an easy mind go into the field and endeavor —endeavor what? To sell gas house heating? No! Not for one moment must we allow ourselves to be thought of as mere "salesmen" in the commonly accepted sense. The public at large must acquire the notion that we are heating engineers, expert in the application of gas to house heating, and ever ready to give advice or information on the practicability of adopting gas as the fuel in any specific instance. If it is known that our company is anxious to add a house heating load, our advice will be expected to be biased. But this prejudice of the prospect can be quickly overcome if we adopt the following policy.

Stick to Facts

When speaking with a prospect, stick steadfastly to facts. Do not stoop to the prevalent weakness of exaggeration. If asked a question, answer to the best of your knowledge and don't be afraid to say, "I don't know." Practically all the stickler questions will be in regard to the prospect's own premises, calling for cost of equipment, cost of operation, comparisons between coal, oil and gas operation costs, etc. These cannot be even approximately answered unless an examination of the building and heating equipment has been made.

And now we come to the real purpose of all our preliminary talking to any prospect, namely, to secure his permission to inspect and measure the job. It may have been necessary to make several calls on the prospect, and to expend many hours' worth of patient talk in which you try to make plain how the already familiar comparison between oil and coal really exists between gas and oil. In other words, gas is as much superior to oil as oil is to coal. No comparisons at all can be made between gas and coal. With the one you honestly and truly heat the house as it should be heated; with the other you keep the furnace going and hope for good results.

(Continued on page 555)

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 94

Heat and Change of State

AN EXAMPLE IN MELTING METALS

It is required to heat up and melt a mass of copper which has the following dimensions, two feet long, three feet wide and five feet thick. This operation is to be carried out in a furnace whose efficiency is 75 per cent and the heating is to be effected by means of a water gas containing 300 British thermal units per cubic foot. The temperature of the room in which the operation is carried out is 65 degrees F. It is required to find out how much gas will be required to melt the copper mass and raise the temperature 100 degrees above the melting point.

The heat calculations involved in this problem may be divided up into the following parts:

1. The heat necessary to raise the temperature of the metal to its melting point.
2. The heat necessary to supply the latent heat of fusion.
3. The heat required to raise the molten mass of copper to 100 degrees above the melting point.
4. The heat required to take care of the losses in the furnace.

The mass of the copper is found to be 30 cubic feet, thus $2\times3\times5$.

The specific gravity of copper is 8.952. Therefore, the weight of the block of copper is as follows:

$30\times62.5\times8.952$, or 16,790 pounds. In this calculation 62.5 is taken as the weight of one cubic foot of water in pounds.

Heat Required to Raise Copper to Melting Point

The melting point of copper is 1,982 degrees F. and its specific heat is 0.0951. Therefore the heat required to raise the temperature of the mass of copper to its melting point is as follows:

$16{,}790\times(1982-65)\times0.0951=16{,}790\times1917\times0.0951$ = 3,060,000 B.t.u.

The latent heat of fusion of copper is 77.4 B.t.u. per pound.

Therefore, the heat required for melting the mass of copper at its melting point is found as follows:

$16{,}790\times77.4$, or 130,000 B.t.u.

Raising Temperature Above Melting Point

It is next required to heat the mass of metal to a temperature 100 degrees above its melting point. The specific heat of copper in that condition may be taken as 0.099. The amount of heat required will, therefore, be as follows:

$16{,}790\times100\times0.099$, or 130,000 B.t.u.

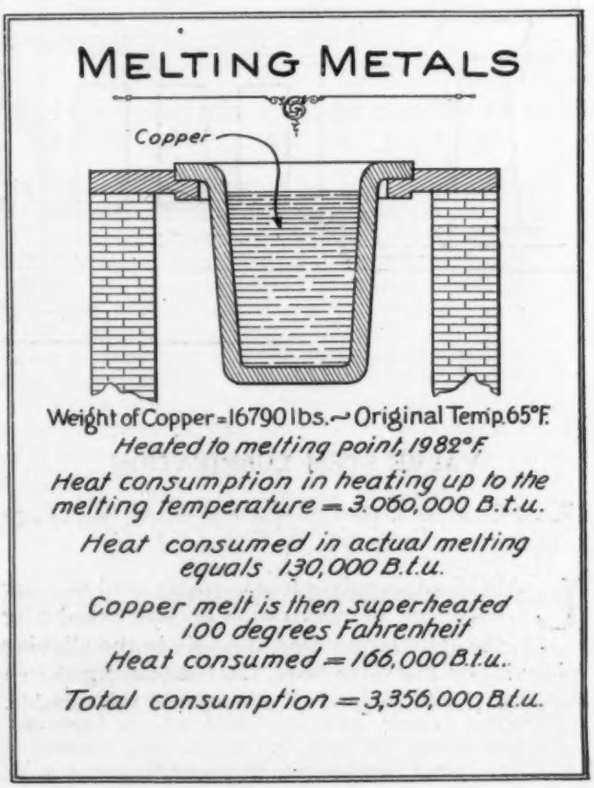
The total amount of heat required is, therefore, as follows:

	B.t.u.
For raising the copper to the melting point	3,060,000
For liquefying the copper	130,000
For raising the temperature of the molten copper	166,000
	3,356,000.

The gas used contains 300 B.t.u. per cubic foot and the efficiency of the heating process is 75 per cent. Hence, the effective B.t.u. in the gas is only three-quarters of the former amount, or 225 B.t.u. per cubic foot.

Hence the volume of gas required is as follows:

$$\frac{3{,}356{,}000}{225}, \text{ or } 14{,}900 \text{ cubic feet.}$$


MELTING METALS
Copper
Weight of Copper = 16790 lbs. ~ Original Temp. 65°F.
Heated to melting point, 1982°F.
Heat consumption in heating up to the melting temperature = 3.060,000 B.t.u.
Heat consumed in actual melting equals 130,000 B.t.u.
Copper melt is then superheated 100 degrees Fahrenheit
Heat consumed = 166,000 B.t.u.
Total consumption = 3,356,000 B.t.u.

GAS WRINKLES

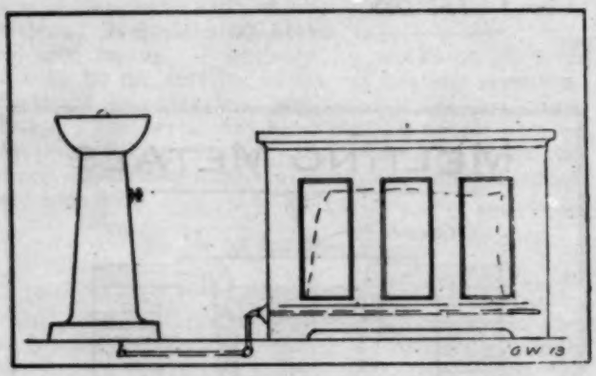
ADJUSTABLE DRILLING TOOL

(W. P. Snyder)

THE photograph shows an adjustable drilling tool used at the Stockton Gas Plant of the Western States Gas & Electric Company for drilling out the brass bearings on connecting rods of the gas well compressors. The tool was made by the plant engineer for the above purpose, but has proved useful in many other ways; for large diameter drilling it is used in the regular drill press, as it has a standard shank. The movable tool post makes the tool very flexible in its application.

DRINKING WATER COOLER

(Chas. Curtis, Western States Gas & Electric Co.)



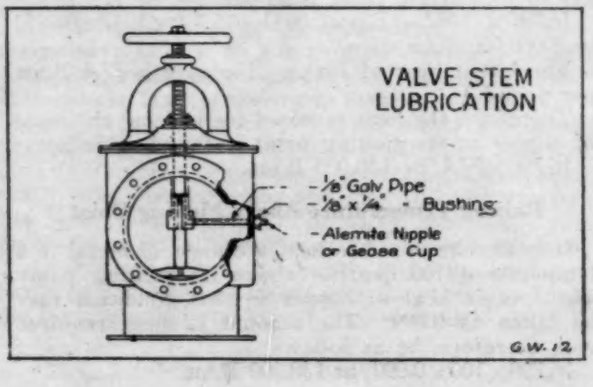
THE accompanying sketch illustrates a very practical drinking water cooler built for use in the Western States Gas & Electric Company's gas plant. A standard ice chest was used and fitted with a coil of 50 feet of 3/8-inch block tin fitted in the bottom under the ice tray. A seal was furnished that held the ice water level just covering the coils. The inlet and outlet pipes were sealed where they entered the box, as can be seen in the photo.

The box furnishes cold water for 24 hours, using 75 pounds of ice. There are some 25 men using the fountain all the time. The coil will furnish a quart of ice water on demand. The installation, exclusive of the fountain and labor, cost $30, but its usefulness more than warrants the expense incurred in installing it.

VALVE STEM LUBRICATION

(R. A. Chambers, Gas Production Dept., San Diego Cons. Gas & Elec. Co.)

LARGE angle valves in gas plants tend to work hard, due to incrustation on stem, rendering the stem larger than the hole in the aligning spider inside the valve body. Accompanying sketch shows a simple method of eliminating this trouble.



PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

COKING OF PULVERIZED COAL

IT has been found in previous investigations that short heating of pulverized coal to a temperature of 420 degrees C. destroyed the caking properties of the coal without there being observed any evolution of volatile constituents or change in size of the particles. In following out these observations the investigators, who described their results in Fuel, volume 3, pages 424 to 434, allowed screened pulverized coal to fall in a thin stream in an atmosphere of nitrogen through a vertical tube which has been heated to 600 degrees C. The particles which were treated in this manner attained spherical forms; their volume was increased and under the microscope in transfused light they were observed to have a black, pitchy-like lustre appearance with small bubbles on the surface.

It was also found that several particles had been caked together. In transmitted light some particular parts of the particles appeared translucent. The particles, therefore, appeared to be hollow spheres which are called "kenospheres." Such particles have also been observed after coal dust explosions in mines. They can also be obtained by the forcing of coal dust through a gas blast flame.

In the original article details are given regarding the dimensions and structural characteristics of these "kinospheres," as well as on temperature and other conditions which are favorable for their formation.

COOLING COAL GAS WITH UTILIZATION OF ITS HEAT

A TWO and a three-stage cooling apparatus for cooling the gas produced in gas works from lignite are described. In the two-stage apparatus the hot gas enters at the lower part of the upper of two superimposed packed chambers and passes out at the upper end, meeting in its course a regulated spray of cold water. The effluent gases are cooled to room temperature and the water is heated to 80 per cent or higher. The hot water siphons over into the lower chamber of similar construction, where it meets a stream of cold air, which is thereby heated and charged with 10-15 per cent of moisture required for the firing of the gas producers.

The partially cooled effluent water is further cooled to the ordinary temperature by spraying it down a flue through which a stream of cold air passes, and the cold water is used again in the process. The three-stage apparatus gives a supply of hotter water to the air saturating and heating chamber as only sufficient water is supplied to the intermediate chamber to provide a small excess of water over the desired amount of steam in the air-blast, the gases being finally cooled in the topmost chamber, the water from which passes to the flue cooler; the warm effluent water from the air chamber is pumped back to the lower cooler.—Z. angew. Chem., 1925, 38, 485-488.

DENSE LOW-TEMPERATURE COKE WITHOUT THE AID OF PRESSURE

COKES were prepared by carbonizing 20 g. of mixtures of coal and low-temperature coke in an aluminum distillation apparatus heated to 500 degrees. As the size of coal particle decreased the density of the final coke increased, but for a given size of coal particles, a maximum density was obtained by using coke of 0.137-0.085 mm. diam. The proportion of coke added depended on the type of coal used, and a strongly caking coal required a slower rate of heating than a feebly caking coal. Comparative experiments using pumice stone and non-porous sea sand in place of coke showed that the absorptive capacity of the low-temperature coke added was a more important factor than the density, the excess binding material of the coal filling up the coke capillaries and thus producing a dense mixed coke. Non-caking coal may similarly be used for mixing with caking coal, and its suitability depends on the proporton of solid to oily bitumens in the coal. —Brennstoff-Chem., 1925, 6, 133-138.

LOW-TEMPERATURE CARBONIZATION IN INCLINED DOUBLE ROTARY RETORTS

THE coal is carried by a screw conveyor through the inner shell of the retort, which acts as a dryer and pre-heater, and delivered to the outer cylindrical casing, where it is heated by producer gas and carbonized at about 500 degrees. The retort rotates and is slightly inclined, so that the coke formed gravitates towards the outlet. The process is improved by admitting superheated steam during carbonization. The yield of tar is 80—90 per cent of that obtained in a laboratory assay, and the semi-coke contains 10.3 per cent of volatile matter and is strong enough to withstand transport. The total yield of light oil (benzine) from the gas and tar is 1 — 1.6 per cent by weight of the dry coal.—Stahl u. Eisen, 1925, 45, 885—887.

REMOVING CARBON BISULPHIDE FROM GAS

THE process for removing the carbon bisulphide, which is the form in which the organic sulphur is present in gas to the largest degree, is patented in the United States, Patent 1,549,426. The process consists of bringing the gas in contact with a water solution of an organic amie.

PROPER PUBLICITY ESSENTIAL TO PROGRESS

(Continued from page 544)

2. A public utility must furnish a dependable, reliable, continuous, and satisfactory service. It must give a service comparable with any other means of furnishing a like service either by another utility, by the municipality itself, or by the customer himself or any other means.
3. A public utility undertakes an obligation, which the municipality might undertake itself, and it must grow and expand as the demands are made for service either in new uses or extended territory, and it must continuously attempt to improve its service and results in order to properly fulfill its assumed promise. The betterments must also be made somewhat in proportion to the improvements in the art.

Must Obtain Fair Price for Service

4. It must be permitted to charge a price for its service which will permit it to pay all its expenses, to provide adequate necessary reserves and to compensate capital for its hire.
5. In order to meet the above four requirements, it must enjoy the confidence of its patrons. Its patrons are the public.
6. When the above requirements are accomplished the necessary new money can be obtained for needed extensions.

Purpose of the State Committees

The purpose of the State Public Utility Information Bureau is much broader in scope than the publicity representative of any special commercial industry. The field not only covers the utilities' customers, probable and prospective customers, but also all political, legislative, administrative and regulatory bodies, and all the constituents of the personnel of those bodies, and in territory and districts where very little or no utility service is rendered.

Paradoxical as it may appear, it is too frequently also their job to educate the public utility executive and operator.

The bureau must present facts, proper and reliable information and news in various ways to inform the utility's patrons and the whole public regarding the utility's business and affairs, so that all utilities can better fulfill their obligations to the public in facilities and service, by being permitted to conduct their affairs in a purely open businesslike manner.

Problem Not as Simple as It Appears

Put up in this way the problem might appear to be a simple task, and one which all utility managers and operators should appreciate to the extent of lending their full co-operation and assistance. Those, who have had experience and know, fully realize that the task is not as simple as it might appear. In the first place the public utility business is a most intricate one. It requires a knowledge of economics, engineering, many of the arts and crafts, accounting, financing, law, commerce, etc., and finally, a proper and correct analysis of all factors.

The assembling and co-ordinating of all the various aforementioned factors and others into one homogenous undertaking is absolutely necessary, and in fact imperative, in order to induce those who have savings and capital either to loan or invest in the undertaking.

The necessity for the public utility industry continuously to obtain capital from outside sources has been shown. The gas industry during the next ten years, it is most conservatively estimated based on past demands, will require two billion dollars, which means about $700,000 a day for all working days. Another fast-growing public utility undertaking, it is estimated, will require four times that amount for the next four years.

A Purely Impersonal and Unselfish Purpose

On analyzing the public utility problem to its ultimate conclusion, it can be seen that the purpose of the State Public Utility Information Bureau is purely an impersonal and unselfish one, that is, to make it possible for the public utility industry as a whole, including every branch, readily to obtain capital at fair compensation for its use, with which to fulfill its obligations, and provide proper, adequate, reliable and continuous service and facilities to the community served.

Properly to inform the public and keep it informed is a stupendous job. The work covers a large field of miscellaneous information and news to be released, and requires various ways, methods, and means of transmitting it to the public, to the investor, to the customer, to the employee, to the regulating authorities, and to the whole public. The job must be accomplished in a most unbiased, informative, and educational way, and one which will be properly received, understood and absorbed. The job is a continuous performance. Information work is important just for the same reason that schools are,—that is, a new generation is constantly coming along, who do not know the problem and must be taught.

Purpose of the Conference

Summing up, the purpose of this national conference, I think, can be readily seen.

It is to have the directors of the state bureaus, the members of the state committees, and the gas executives meet and discuss the work, the problems, and the accomplishments of the state bureaus, to the end that all may more fully realize and appreciate the absolute necessity for the continuance of the work in perpetuity and to consider methods and means of making the work more far-reaching and effective.

To state the purpose of this national conference in another way. The sole and express purpose is to endeavor to improve upon the present work of the bureaus by discussion and suggestions of all the

parties interested in the work and its ultimate accomplishments. The job is to so educate and inform the whole public—customers, prospective customers, political, legislative, administrative and regulatory bodies, the constituents of the personnel of those bodies, the utility executive, its employees, and the remaining public, whether located in districts and territories served or not served by any kind of a public utility—that they may know what a public utility is, its importance to the very existence and life of a community—its needs to develop the community as a safe, healthful and comfortable place to live, and to develop industry, and the necessity for proper and fair treatment of the utilities so that they can continue to invite capital into the undertaking. This will permit all utilities to render the greatest service to the greatest number of a community's population and at fair prices and proper standards of service, and also permit the utilities to have available at all times adequate facilities with which to meet the ever-increasing demands.

GAS IN A STATE EXHIBIT

(Continued from page 546)

duced into this territory with the installation of a small gas plant at Decatur, Ill., for the manufacture of illuminating gas. From this small beginning the gas service of this company has grown to include extensive industrial uses and has ousted the wood-burning stove and the coal-burning furnace from thousands of homes, until the total daily generating capacity of the company has reached 24,000,000 cubic feet of gas. In addition to their gas plants and extensive electric generating plants, the corporation maintains 90 merchandise stores through which more than 60,000 electric and gas appliances are sold yearly—and this trade is rapidly increasing.

In addition to their map, they showed on a miniature scale models of all of their different plants. These were set on a long rectangular table and all were lighted from within, making a decidedly impressive showing. Another chart featured their sale of preferred stock, showing that it could be purchased on the time payment plan.

SOME SELLING POINTERS IN HOUSE HEATING

(Continued from page 550)

Food for Preliminary Conversation

Physically it is impossible to burn anything except a gas, so that when coal or oil are "fired," the operation consists in first gasifying the fuel before it can be burned. This means that all solid or liquid fuel furnaces are in truth miniature gas plants as well as heating furnaces, with all the attendant inconveniences of maintaining adequate fuel supply, troublesome regulation of the adjustments necessary to insure proper gasification, and the ever-present risk of smoke screening the neighborhood when something gets out of whack, not to mention the fire hazard of flying sparks or the messiness of floating carbon flakes which result from faulty oil combustion.

Coal and Oil

In the case of coal, labor (real honest-to-goodness hard work) is required to handle the stored coal, to fire the furnace, which requires, in addition, constant vigilance, to clean out, to store, and to haul away the ashes. If man does all this himself, it robs him of his peace of mind and his leisure hours. If he has it done for him, he must be dependent upon someone else and pay him, as well as keep constantly after them to see that they are always on the job. But this is not all. Any kind of coal will, in handling, give off dust which, try as one might, cannot be kept from finding its way up into the rooms above. The dust from ashes, being lighter in weight and of finer particles, is even more troublesome in this regard. Then, as though the story were not complete, no cellar is ordinarily so parlor-like clean that some dust is not carried up on the "fireman's" shoes when he returns to what is left of his evening's hour at home. To avoid this latter evil, it is necessary to exert a heap of effort to keep the cellar in such shape that a casual visit to it will not result in tell-tale footprints. And after all is said, there remains the paradox—namely, one cannot get perfect heating from a coal furnace. We mean that the commonly accepted, healthful temperature of 70 is only attained for a short while at a time as the thermometer varies between "too chilly" and "too hot." Even a thermostat on a coal furnace has not been found to improve matters much.

In the case of oil, we find the first step toward modernization of the "zone below the first floor." We say the first step, because there is freedom from coal and ash dust and no need for handling. Also, on well set up jobs, there is a heretofore unheard of delight from a uniform temperature which is so close to 70, or anything else for which the customer wishes to set his thermostat, that the human system cannot sense any variation whatever. What, then, can be the possible objection to oil heating?

Gas Heating

How, then, we are challenged, is the gas boiler as much superior over oil as oil is over coal? Our answer is easy! In the first place, for the same installation cost, usually it is less, we are able to furnish an entirely separate boiler, handsome in appearance and specially designed to burn our fuel. "Our Fuel," we repeat for emphasis, is a gas to begin with, so that all we need to do is burn it—there are no moving parts while the gas is burning, hence no noise at all. Indeed, some customers have asked for a very hard adjustment of the flame in order that they might know when the boiler is running by listening from the head of the cellar steps. The noise of the thermostat motor, usually not objected to, can be

avoided by securing the motor to one of the foundation walls. There is no outside tank, no fuel supply to worry about, nothing to order in advance—the fuel is paid for after it is used, and its use can be closely watched if a man will read his meter. There is, of course, no smoke, though there are times when clouds of steam vapor, water of condensation, will be seen to leave the chimney. There is a minimum number of moving parts, the unlikely maladjustment of which need not leave a man without heat; he can always fall back onto manual regulation until a man from the gas company comes to make things right again.

Objection

Alas, we have talked for naught! Our prospect seems full of objections. He tells us that as our number of house heating customers increases, the pressure in our mains is sure to drop; that if the pilot goes out, the house and cellar are going to fill with gas and cause an explosion; that he might want to leave town for several days and would not dare to leave the boiler running; that once he puts in a gas boiler, he is at the mercy of the gas company and would be properly out of luck if his gas supply were to be cut off. Let us answer with patience. Remember, we meet several prospects a day, whereas each prospects sees us only occasionally, and wants to feel that we are giving him the best of our attention. He has a perfect right to feel this way for aren't we asking him to spend several hundred dollars for an installation which will cost him something to run?—how much, we will tell later. A carefully worded reply to the foregoing objections will in most every case win a sympathetic ear.

Perhaps, friend reader, you have lost the thread of our little story. We have been delving somewhat into the details of what we must tell our prospective buyer on our preliminary visits in order to gain his before is only for the purpose of gaining enough inpermission to let us inspect and measure the premises we want him to heat by gas. What has gone terest so that the prospect really wants to know the costs (of equipment and of operation) for his house. Perhaps we can even get him to hope that our quotation will be within his means. Once we get the liberty to inspect and measure, our preliminary work is over. Let us pass along to the next steps of the sale.

Preparing for the Estimate

Take all the measurements and make all the required observations called for on "Field Data Sheet." Compute the theoretical radiation and from government geological reports for your locality determine the number of days that heat will be required, and the average outside temperature during that period. If no data regarding Krt. are available, the following formula is recommended:

$Q = Rt \times N \times (65\text{-}To) \times Krt.$

Where, Q=Quantity of gas consumed per season; cu. ft.

Rt=Theoretical steam Radiation; square feet.

N=Number of heating days (from Government reports).

65=An empirical figure explained on page 10, paragraph 8, of "House Heating," one of the A. G. A. Industrial Gas Series Books.

To=Average outside temperature during N. (from Government reports).

Krt=An empirical factor subject to change each year as the number of installations provides additional data for its more accurate determination. Its dimensions are—cu. ft. of gas per day per degree rise per square foot of theoretical radiation.

An Assumed Value for Krt.

It will be wisest, for the first season, to use Krt. =200, and apply this to the theoretical steam radiation on all jobs, regardless of how the house is heated. This advice is given from experience with 50 jobs operating one season. As time goes on, and records are kept as indicated in the aforementioned article, this figure might be changed and even special figures gotten up to suit special cases, such as theaters, churches, stores, etc.

Cost for Heating

From Q, the cost for heating per season can be determined by applying the rate. From the Government geological reports over several years, it is possible to determine how the consumption will be divided among the various months. For instance, we find that in our locality practically 25 per cent of the total amount is likely to be burned between January 15 and February 15.

Determination of Heater Size

In order to determine the boiler size, add 50 per cent to Rt. (or to the actual radiation if it is larger) and consider this figure (Rt. $\times$ .5) as the total load for which the boiler must care. If the job is hot water, the same rule holds—i.e., simply consider everything as measured by steam radiation, but specify the corresponding hot water generator.

Hot Air Heater

If the prospect is using hot air heat, he is most likely interested in gas because he contemplates changing over his system to steam or hot water. Very few hot air jobs are successful. With a gas boiler. steam is equally as serviceable as water; there is always an even temperature in either case, and the cost of making a steam installation is considerably less than the cost of a hot water installation. (This is also true of steam systems in respect to vacuum and vapor systems.) However, if the prospect insists on staying with hot air, the following is offered in order to make this treatise complete:

Calculation on Hot Air Installation

First: Assume that measurements have been taken and the theoretical D.C.I.R. has been determined. Let us say that this is 300.

Second: Good gas boilers are found to give 85 per cent efficiency. Since hot air heating is generally accepted to be more efficient than hot water, steam or vapor, we can certainly feel safe in assuming that the efficiency of a good hot air heater will be 85 per cent.

Third: Each square foot of D.C.I.R. is rated to deliver 240 B.t.u. per hour.

Fourth: Hence 300×240=72,000 B.t.u. per hour must be the heat delivering capacity of our heating system.

Fifth: Whence: $\frac{72{,}000}{.85}$ = 85,000 B.t.u. per hour must be the amount of heat we must supply our heater in order to deliver the 12,000 B.t.u. per hour.

Sixth: If our gas averages 530 B.t.u. per cu. foot.: $\frac{85{,}000}{530}$ = 160 cu. ft. per hour must be the gas burning capacity that will have to be provided to heat the rooms only.

Seventh: But, as in all systems, an allowance must be made for losses between the heater and the rooms to be heated, as well as for "quick heating." This is usually a factor of 1.5 whence: 160 + 1.5 = 240 cu. ft. per hour must be the smallest capacity heater for this house.

Eighth: Stated as a single equation, the computation would be: $\frac{300 \times 240 \times 1.5}{.85 \times 530}$ = 240 cu. ft. per hr.

Duct sizes and air circulation present entirely different problems and must be looked out for.

Armed with full information, we then visit our man once more, twice more, or as many times as necessary, until we learn exactly how he stands on the proposition. We may have to go patiently over all the old ground, or we may, if our prospect is of that type, merely present our figures and retire. Many men like to think things over by themselves for a long time, and then come around and "buy," rather than "be sold."

Operating Data

During the period that coal was used, the capacity of the hungry furnace was 60 tons a season. During the first gas-heated season, the average gas rate was $1 per M; during the second season, the gas rates having been reduced, the average rate was $0.75. The costs for heating were thus:

Coal: 60 tons @ $18.00.....	$1,080.00	
Labor, 30 weeks @ $15.00	450.00	
Ash removal	170.00	
		$1,700.00
Gas: 1,600,000 @ $1.00 (first season....		1,600.00
1,600,000 @ .75 (second season)....		1,200.00

The result was a material saving in the heating bill alone, not to mention the very much improved heating service.

Advantages Gained

During the days of coal heating, chilly days saw the guests at the breakfast table in coats and wraps —everybody knew it must be cold outdoors for they shivered over their morning egg. We said above that the coal heater had a "capacity" of 60 tons a year. We mean that that is all she would burn even when coaxed, and then it was hours before the fireman could make any sensible impression upon the indoor thermometers.

A TIMELY ADVERTISEMENT

J. B. Dillon

MOST every advertisement that is timely and tells of something worth while is a sales-getter. This is our experience and has been found to be true many times.

It is autumn. The chilly blasts and the dreary skies are just around the corner. In fact, we have felt "and seen 'em." However, with the outburst of Ole Sol, the cold wind man runs under cover, folks soon forget and let it go at that, but Cousin Autumn, without being heralded, bobs up, and it is then our turn to run under cover. But to what kind of covering?

To wait until we can kindle a fire in the big furnace, if it happens to be a coal burner, delays the game so long that we become grouchy and are displeased with everything in general, and this is where the heating with gas proves itself to be the King of all.

No doubt this is how the Public Service Company of Colorado mused when it placed this advertisement in the Colorado newspapers.

The advertisement is timely and it shows the conditions outside and just what they can be on the inside if a first-class gas heater is available. The company makes the heaters available to all by selling them at a moderate price and on terms to suit most any pocketbook.

GAS COMPANY TRAINS LAUNDRESSES

And now you can get your laundress through the gas company. At any rate, one company, the Portland Gas & Coke Company of Oregon, has installed a laundress service for its customers and has even started a school to train them in the proper use of gas-fired washers, ironers and dryers, it was learned during the late convention of the American Gas Association.

One of the methods used by this company to stimulate the sale of gas appliances is to locate some of the best laundresses in the city, instruct them free of charge in the operation and maintenance of washing machines and provide them with work.

In its advertising the company points out that it is prepared to supply competent laundresses who are familiar with these particular machines and to give them references. It supplies each laundress with a little kit bag, large enough to hold an oil can, small wrench and screw driver—just enough to make ordinary adjustments. So far the company has failed to receive any complaints that the laundress had to go home for her tools.

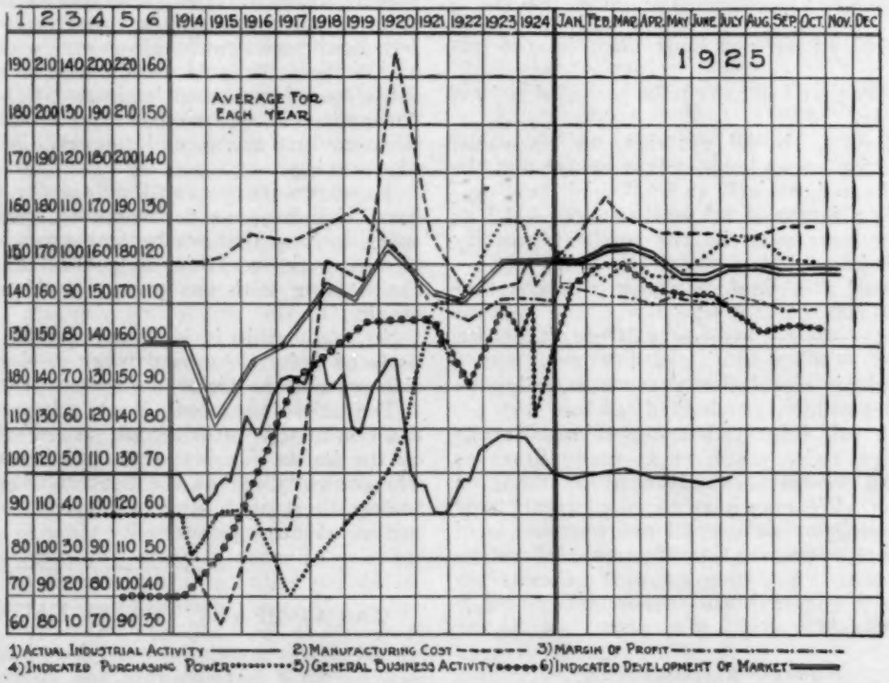
Market Outlook Favorable

International situation favors American farmer

A. W. Alwyn-Schmidt

THE weather prophets have it that we are in for a hard winter. Experts on the European crop situation are of opinion that Europe will be behind with food production and that prices for agricultural products will be higher. Under ordinary circumstances such news would herald general distress and bad times. Fortunately, however, there is little reason for worry. In fact, indications are that this state of affairs will help to improve the situation in the American market by giving it an impetus to the decisive upward turn which it has lacked all through the summer.

The past six months have been rather moody, if this word may be used in describing an economic condition. There have been a succession of contradictory tendencies, with none gaining a real influence upon the market. Hence manufacturers and bankers could not do otherwise but assume a waiting attitude. Industry has sent out trial balloons by changing styles and reducing prices. Banks have tried the strength of the market by varying their credit policy. But no stimulant of this kind was strong enough to make an impression upon the market. It continued to muddle ahead somehow, improving all the while a little, but showing no real incentive to justify industry and capital in making a combined effort to set things going.


1 2 3 4 5 6
1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.
1925
AVERAGE FOR EACH YEAR
1) Actual Industrial Activity
2) Manufacturing Cost
3) Margin of Profit
4) Indicated Purchasing Power
5) General Business Activity
6) Indicated Development of Market

Consumer Had Opportunity

During the last six months the consumer, if he had wanted, might have run the market entirely to his taste. Only somehow he failed to make use of this great opportunity; he failed to make known his real desires.

The American consumer has undergone a great change of heart during the last four years or so. From an easy-going spender, who was always ready to hand out his money for anything that looked desirable, he has turned out to be a very discriminating buyer, with a sharp eye for values. This applies to the retail buyer as much as the business man; it has added new zest to madam's shopping expedition and it has brought forth an era of competitive estimating in the husband's office.

Has Change Been Appreciated?

Has the American manufacturer fully appreciated the significance of this change? If not, it is time that he does so and that he manufacture the new kind of merchandise that will be required to answer this demand.

This tendency in the temper of the consumer will most surely be strengthened by a severe winter. Economic research seems to have given proof that the cultural center of the world has moved to colder climates with the steady improvement of technical knowledge. While in the early days of the world culture flourished in the tropical and semi-tropical zone, it is now at home in the north, and now the northern races dominate the cultural and economic development of the world. The change of climate from the warm summer to the cold winter plays an important part in the economics of the northern races. And the greater the difference in the cli-

matic condition the larger is the demand for those articles which are required to meet it.

Effect of a Cold Winter

A cold winter cannot be borne with badly-made clothes, with insufficiently heated houses. It requires clothes, houses, in fact, all the articles of daily comfort of the best kind. If we have, therefore, to face a hard winter it will not mean distress in our own country. On the contrary, the winter will enhance the tendency to purchase quality goods. It will provide that driving force that was required to bring about a declaration of a market tendency.

Larger demand for winter goods, in turn, will mean more work for the American industry, better prices and better wages, which again will help to set in motion the purchase movement among large classes of wage earners. Under these circumstances the possibility of a rise in food prices caused by the expected large purchases for European account will not play such an important part in the psychology of the market.

AN OPPORTUNITY FOR GAS

(Continued from page 545)

domestic fuel with which the gas men were hard put to it to compete. But now that the price has doubled, gas has a fairer field. There have been great changes also in the economics of the gas industry.

Here is the gas man's opportunity. The gas man must become, whether he will or no, a merchant not only of heat, but of fuel.

Strong Reason for Gas Entering Field

There is a stronger reason why gas companies should advance into this field. In fact, they must do it or fail in their duty to the public. Under our system of government there are two methods of fixing the price of the necessities and conveniences of life—competition and regulation. Experience has taught us that, where possible, competition is the best regulating agent, and much of our statute law and of our administrative system is aimed to prevent monopoly, so that competition may have free play. But there are some industries like the public utilities where competition has failed, and for these a system of monopoly under government regulation has been devised, which has proved measurably successful.

The line between a public utility and a private industry is drawn in practice thus: Where free competition has failed, after a fair trial, to produce satisfactory results, or where competition is not found to be in the public interest, the industry is declared to be a public and not a private service; competition is restricted and the economic law is supplemented though not supplanted by government regulation.

Extension of Gas Company's Influence

As merchants of gas fuel only, the gas companies now exercise only a feeble influence, but with the changes in methods of production which are in sight it is reasonable to assume that they can shortly supply from one-fourth to one-third of the whole market for domestic heating. Some customers will be supplied with coke; others with gas and oil, and some with all three combined; the relative demand for these heat-producing agents being regulated by price adjustments under commission regulation.

Results of Such Extension of Influence

If the gas companies can establish themselves in the fuel and heating market as the electric companies have in the power market, the time is in sight when the present demoralized condition in the coal industry will end. Improvement will come about in three ways:

First, the anthracite market will face such severe competition from bituminous coal in various manufactured forms that panic and profiteering will disappear and prolonged strikes will be a luxury which neither miner nor operator can afford.

Second, a host of small buyers will be eliminated from the bituminous coal market, where the dominant buyers will be great public utility companies like the railroads, the power companies, and the gas companies, making annual contracts for large tonnage. This will enable the mine operators to standardize and equalize their mining operations, and to co-operate with the buyers in developing storage facilities. If they make the most of their opportunities, prices will come down.

Third, if the mine operators are unable or unwilling to operate upon a thoroughly efficient basis, the buyers will be powerful enough, acting separately or jointly, to buy and operate their own coal mines.

Thus order can be brought out of chaos, and fuel prices effectively controlled without the intervention of the government.

HOG BARBER FINDS NEW USE FOR GAS

Cleveland.—Pigs is still pigs, as Ellis Parker Butler might have remarked, but a great change has taken place in methods used to remove the tough stubble which covers the porker's hide.

This stubble must be removed before the porker has fulfill his mission in the form of bacon, ham and pork chops.

Some years ago, the old-fashioned scraper, unwieldly and slow, was the only device employed for this purpose. Then came the oil torch, but the oil splattered on the carcass and tainted the meat.

A new practice in post-mortem is enough to frizzle a hog's whiskers, and in fact it does, says the Ohio Committee on Public Information.

In up-to-date packing plants, tonsorial treatment is administered by means of a gas torch. Fresh killed pigs hitched to an overhead conveyor swing toward the hog barber. With a flash the flame from the gas torch sweeps up the hog's back.

Scorch, sizzle, swish!—and bristles, hair, whiskers and eye lashes curl and vanish into nothingness.

This is one of the thousand new uses which have been found for gas, says the committee.

Three Essentials of Salesmanship *

Actual experience, accuracy and service

Elizabeth MacDonald
Field Editor, Modern Priscilla

FROM my standpoint as a housekeeper as well as an editor, three special necessities stand out for the salesmen to keep in mind.

The first is actual experience. Unless we have been through a thing ourselves it fails to get under our skin sufficiently to make us sympathetic. The only way to know how a housekeeper feels is to keep house, just as the only way to learn to swim is to go into the cold, wet water instead of sitting in a warm corner with a book and reading about how to swim.

A serious suggestion to salesmen of household devices which cannot fail to increase their sales ability would be that they should take the full responsibility of housekeeping for a period long enough so that they really get the housekeeper's point of view. After this, when they sell a device they will not only sell it on the demonstration principle but they will also sell its use as it fits into the normal housekeeping routine.

Accurate Salesmanship

The second necessity is for accurate salesmanship. For example, much harm has been done by overselling an electrical or gas device. A woman who is told that a washing machine will do all the work of the hands, in the course of a few months will find that this statement is not true, since no mechanical device has brains enough to pick out the wristbands of a shirt and rub them harder than the tail. Accurate salesmanship on the basis of actual housekeeping experience makes an unbeatable combination as a foundation for solid sales.

The third necessity is for attention to the customer after the sale has been made. When the sale is complete only the device has been sold in many cases. We can create a larger market by following up all sales and making sure that the device is being properly used and is thoroughly understood by the customer in her own home and in her own daily routine. A dissatisfied customer can build up a stockade or sales resistance in her neighborhood which takes a lot of battering on the part of an enthusiastic salesman to knock down.

Gas Renders Essential Service

Above all things, the salesman of gas household devices needs to remember that he is rendering an essential service to the community. Home-making today, for the first time, has become a competitive industry. Only two generations ago the only way a woman could earn her daily bread was to get it through a wedding ring. Today she may enter practically any profession or trade. When a man comes to her and asks her to marry him she weighs his proposal against that of other possible employers. She no longer has to take the first man that comes along. She may sit aloof and make up her mind whether she will work for a husband seven days a week, 365 days in a year, minus a pay envelope, or whether she would rather work in an office fifty-two weeks in the year, with two weeks' vacation, plus fifty-two pay envelopes. The only way in which we can establish the American home under present conditions is to make it at least as attractive as the other fields now freely open to women.

*Delivered at a Sales Conference of Tenney Service.

INDUSTRIES TURNING TO GASEOUS FUEL

Industrial engineers representing the largest gas companies in the United States reported that virtually every industry in which heat treating was part of the manufacturing process was included in the list of manufacturers who had turned from coal, oil and other fuels to manufactured gas during the past twelve months.

Many of these were industries which had never used gas on a large scale before. It was generally estimated by speakers at the convention of the American Gas Association that new industrial gas installations made during the last year, particularly the first eight months of 1925, would require an increased annual production by manufactured gas companies of from three to five billion cubic feet. This does not include the increased consumption from domestic appliances nor from appliances in which natural gas or producer gas is used.

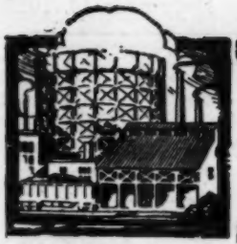
According to J. F. Reynolds, superintendent of the industrial appliance division of the Consolidated Gas Company of New York, improvements in the indirect motor driven hot air heater have opened up a new field for gas in the drying of chemicals, fabrics, steel screws, bolts, carpets, cork products, face powders, photo prints, paper mache products, sponges and innumerable other products.

W. M. Hepburn, of the Surface Combustion Company of New York, declared that manufactured gas was the only primary fuel now available that holds forth absolute assurance of lower prices and a permanent supply.

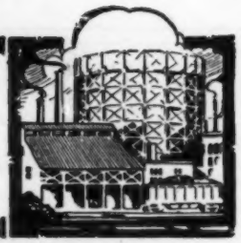
"Within the next three years the economic influences are bound to cause an upward trend in the price of fuel oil to a degree," he said, "which will necessitate a decided curtailment of its use as a fuel.

"The use of raw coal as a fuel is beginning to be given serious study and publicity. The economic waste is beginning to be interpreted in savings available.

"The use of electricity as a heating medium for industrial work is uneconomic in spite of its advantages. Super-power will never take care of this uneconomic condition, because if every stream in the country was harnessed we would only generate a small percentage of our present power requirements."



NEWS OF THE GAS INDUSTRY



Pennsylvania Gas Association to Hold Annual Meet

Comprehensive Program Arranged

The fifth mid-year meeting of the Pennsylvania Gas Association will be held on Monday, December 7, at the Casey Hotel, Scranton, Pa. A comprehensive program, composed of business and entertainment features, has been arranged as follows:

Program of the Meeting

10 a. m.—Meeting called to order and opening remarks by the president of the association, Wallace G. Murfit.

Address of welcome—Worthington Scranton.

Paper — "Home Economics," Miss Marian Brainard, Luzerne County Gas & Electric Corporation, Kingston, Pa.

Paper—"Survey of Textbooks on Economics and Civics in the Pennsylvania Public Schools," Major J. S. S. Richardson, director Pennsylvania Public Service Information Committee, Philadelphia, Pa.

Paper—"House Heating with the Doherty Gas-Oil Burner" (name to be supplied), Henry O. Loebell, Combustion Utilities Corporation, 60 Wall street, New York.

Discussion—Led by R. E. Ramsay, of the U. G. I. Co., Philadelphia.

Luncheon

The Scranton Gas Company invites the members and friends of the association to be its guests at luncheon in the Palm room at 12:30 p. m.

Address—Mayor Durkan, Scranton, Pa.

Address—W. A. Allison, Pennsylvania Public Service Commission, Harrisburg, Pa.

Address—Rt. Rev. Samuel Steinmetz.

Round Table Discussion

Report of committees.

Topic No. 1—"Common Use of Ditch by Water and Gas Pipes." Discussion led by H. N. Squier, Scranton, Pa.; E. G. Boyer, Norristown, Pa.

Topic No. 2—"Tar Disposal by Small Plants." Discussion led by W. C. Rivenburg, Phoenixville, Pa.; Thomas Lewis, Perkasie, Pa.

Topic No. 3—"Bookkeeping Without Books," paper by W. H. German, Harrisburg, Pa. Open discussion.

Topic No. 4—"Method of Training and Compensating Salesmen in Small Companies," paper by L. T. White, Buffalo, N. Y. Open discussion.

Adjournment.

Industrial Gas Increases in Indiana

Evidence of increasing industrial activity in the territory served by subsidiaries of the Midland Utilities Company is contained in a report of sales of manufactured gas by the Northern Indiana Gas & Electric Company. The Northern Indiana Gas & Electric Company, which is one of the operating subsidiaries of the Midland group, under the management of Samuel Insull, sold during August 324,071,500 cubic feet of gas, as compared with 277,274,700 cubic feet in August last year. This represents an increase of 16.88 per cent.

Brooklyn Union Gas Reports Unusual Service Demand

Brooklyn, N. Y. — Brooklyn Union Gas Company in the last month received twice the usual applications for service, the company announces. In addition to this, the call for new extensions has been so great that the company has been compelled to put two great trench diggers at work to make the ground ready in one-two-three order for new mains.

This demand for new mains, it was explained, is due to the great developments in real estate being made in Brooklyn and Queens. Whole blocks of new houses are going up rapidly and the buyers of these require gas as soon as they move in.

The company is determined that there shall be no delay in furnishing this service, hence the trench diggers.

Much of the demand for gas is for its use to heat the new homes and apartments. It was explained at the company's offices that the demand can be fully met, no matter how great it may become, and that there is absolutely no prospect of a lack of this fuel, as the ability to supply it is practically unlimited.

Complete New Gas Line

New Castle, Pa.—The new gas line from the Butler County fields to this city is completed. The additional supply of gas received from this source is expected to eliminate possibility of a shortage here this winter. It is being connected with the local lines of the Manufacturers' Light & Heat Company.

Gas Merger in New York

Albany, N. Y.—A certificate has been filed in the office of the Secretary of State merging Stissing Light and Power Company, Inc., with Central Hudson Gas and Electric Company of Poughkeepsie.

Troy Gas Plant Proves Success

New Industry Will Supply Commercial Gas to Schenectady, Albany and Troy

Troy, N. Y.—The new Troy coke plant of the Hudson Valley Coke and Products Company was operated for the first time October 19, and proved a success. The 55 ovens were ignited early in the morning and during the day continued the process of making coke. At night the heavens were illuminated for miles around by the flare of the burning gas, which eventually will be stored in tanks and distributed to Albany, Troy and Schenectady as commercial gas.

The gas mains connecting the Troy plant with Albany and Troy have been installed and gas service to the two cities will be begun within a few days. Work on the Schenectady 12-inch cast steel main is progressing rapidly and will be opened to continuous use within a short time.

It is expected that by November 1 full production of the plant will be effected and that the gas supply will be consumed by the cities above named. The by-products plant, which will produce coal tar products, benzol and other chemicals, will be opened within a day or so.

R. C. Hoffman Jr., Elected President of the Standard Gas Equipment Corporation

At a regular meeting of the board of directors of the Standard Gas Equipment Corporation, held in Baltimore, November 4, 1925, G. H. Warner having declined reelection, R. C. Hoffman, Jr., was elected president to succeed him. Mr. Warner was elected chairman of the board to succeed William M. Crane, who retires. George Vaughan succeeds Mr. Hoffman as treasurer and A. R. Hancock was elected assistant treasurer.

Mr. Hoffman is well known in financial circles and has been associated with the Baltimore Gas Appliance Company since its organization 12 years ago in the capacity of vice-president and treasurer. He was largely instrumental in bringing about the consolidation of the William M. Crane Company, Baltimore Gas Appliance and Manufacturing Company and the General Gas Appliance Company into the Standard Gas Equipment Corporation, of which he was vice-president and treasurer.

Mr. Warner, formerly president, was elected chairman of the board, succeeding Mr. Crane, who has retired from active business and will spend his time in caring for his many private interests and in seeking the leisure he so richly deserves after the many years he has given to the gas industry.

Mr. Crane and Mr. Warner are two outstanding figures in the history of the manufacture of gas appliances. Forty years ago they started the William M. Crane Company, selling Albo Carbon lights, adding to this line gas ranges and other equipment as jobbers. Then they manufactured on a small scale. By hard work and good management their business was built up steadily to the position it occupies today in the gas industry.

George Vaughan, who was secretary of the William M. Crane Company and comptroller of the new corporation, was elected treasurer to succeed Mr. Hoffman, and A. H. Hancock was elected assistant treasurer.

The officers and directors are as follows:

President, R. C. Hoffman, Jr.; chairman of the board, G. H. Warner; vice-president in charge of sales, H. D. Schall; treasurer, Geo. Vaughan; secretary, T. C. Ratcliff. Directors: W. Graham Boyce, Union Trust Company of Maryland; William M. Crane, retired; Edmund S. Dickey, Maryland Water Works; R. Curzon Hoffman, Jr., president; Norman James, president James Lumber Company, Baltimore; Henry H. Jenkins, Hambleton & Co., Baltimore; George H. Warner, chairman of the board.

New Gas Company Chartered

Albany, N. Y.—Southern Seaboard Gas Corporation, Wilmington, E. E. Garrison president, capital 10,000 shares preferred stock, $100 par value, and 30,000 shares common stock, non par value, chartered under Delaware laws to manufacture artificial gas, has filed certificate of statement and designation in the office of the Secretary of State to enable it to do business in New York State. New York office is 452 Lexington avenue, New York City.

Proposes Beverly Gas Stock Increase

Boston, Mass.—A hearing was held recently by the Public Utilities Commission on the petition of the Beverly Gas & Electric Company to issue 11,000 new shares of stock with a par value of $25, to be sold at $55 to the present stockholders, of whom there are 33,000. D. E. Manson, president of the company, said that the purpose of the proposed issue is chiefly to pay off outstanding notes on money borrowed during the last five years for additions and improvements.

Milwaukee Gas Co. Assessment Increased $200,000

Milwaukee, Wis.—An assessment of $17,486,434 is placed against the Milwaukee Gas Light Co. for 1925 by the Wisconsin Tax Commission. It is an increase of $200,000 over the assessment of last year and the tax on it will approximate $510,000, according to Tax Commissioner L. A. Arnold.

The property of the gas company is assessed by the State because its activities extend beyond Milwaukee city.

The city assessment board placed a valuation of $100,000 on the merchandise carried by the company—stoves and lighting fixtures—and this assessment has been taken to the courts by the company.

3 Part Rate Meters in Kansas

Kansas City, Mo.—The Kansas City Gas Company has 350 of the contemplated 500 meters installed for the test of the 3-part gas rate in homes. The remainder awaits equipment to some extent, and signers for the manual control regulators.

C. W. Green, vice-president, said the company would make a reading of these meters November 16, the first date any acceptable comparison of the new and old rate could be made.

W. H. McBride Passes Away

Louisville, Ky.—William Harrison McBride, 79 years old, retired salesman for the Pittsburgh Coal Company and for twenty-six years manager of the coke department of the Louisville Gas & Electric Company, has passed away.

A native of Louisville, Mr. McBride, the son of the late Alexander McBride, pioneer hardware dealer of Louisville, and Eliza Ramsdale McBride, retired about three years ago.

Utilities Commission Renders Decisions

Lansing, Mich.—The State Public Utilities Commission has authorized the organization of the Holland Gas Co. The new corporation takes over the Ottawa-co Gas Co. An issue of $300,000 worth of securities to retire obligations of the old company was approved.

Mrs. Martha Elliott Barker Dies

Denver, Colo.—Mrs. Martha Elliott Barker, widow of the late William J. Barker, who was vice-president and general manager of the Public Service Company of Colorado at the time of his death, died in her Denver home October 22. A few weeks previous, Mrs. Barker tripped and fell down the stairway at her home, breaking an arm. It was thought that she was mending nicely when death came unaware. She was 67 years of age.

Naugatuck Gas Co. Absorbed

Waterbury, Conn.—The Waterbury Gas Light Co. has taken over the property of the Naugatuck Gas in Naugatuck, Conn., the transfer being effective November 1st. The Naugatuck Gas was formerly owned by the Connecticut Light & Power Company, this city, who still maintain their electric interests in the "Rubber City."

Lone Star Gas Company to Increase Its Stock

Dallas, Texas.—The Lone Star Gas Company will increase its capital stock from $10,675,000 to $13,500,000, the stockholders decided at a meeting recently, to provide funds for improvements in the company's pipe line and production system.

The new issue of $2,825,000 will be sold only to the present stockholders, at a par value of $25 a share, R. A. Crawford, president of the company, said. The pro rata will be made on the basis of stockholders Dec. 1.

Improvements are now being made by the company which will give Dallas 24 per cent more gas than it now receives. A pipe line is being laid from the Caddo-Breckenridge field to Dallas and Fort Worth and compressor stations being improved.

Gas Use Increases in Indianapolis

Indianapolis, Ind.—Data compiled by V. V. Smith, assistant treasurer of the Citizens Gas Company, show that the amount of 39,519,000 cubic feet more gas was consumed in Indianapolis for the first nine months of the year than was consumed during the similar period of last year and that on October 1 there were 1,450 more gas meters in operation than there were on the same date of 1924. Officials of the company say that the figures reflect the prosperity and growth of the city.

New services installed in the first nine months of last year were 5,430 and for the first nine months of this year they were 6,238. In the same period last year 84,113 feet of gas mains were laid and in the same period this year 133,735 feet of mains were laid. An increase over the amount of mains laid this year is provided for in next year's program. Although last year from January to September there was a decrease in the commercial consumption of gas, this year in a like period it increased from 24,967,000 in January to 27,415,000 in September.

St. Paul Gas Light Co. Properties Acquired

H. M. Byllesby & Co. announces that the Northern States Power Company has made arrangements to purchase the St. Paul Gas Light Company, which supplies all of the gas service and approximately 70 per cent of the electric light and power service in the city of St. Paul, Minn. Application will be made to the authorities of St. Paul for consent to consolidate the St. Paul Gas Light Company properties with those of Northern States Power Company, which now supplies about 30 per cent of the electrical requirements of St. Paul, the entire electrical requirements of Minneapolis, and approximately 600 other cities and towns in the central northwest. The St. Paul Gas Company's property includes both steam and hydro-electric generating stations and a gas plant with a daily manufacturing capacity of 10,000,000 cubic feet. The company also has a contract for the purchase of coke oven gas, which provides for about 75 per cent of its total gas output.

In an interview, R. F. Pack, vice-president and general manager, Northern States Power Company, states that the unified operation of the electric utilities in St. Paul will insure better service and improved operating efficiencies, as well as utilize to greater advantage the large hydro-electric and steam power stations of the Northern States Power Company. The Northern States company has 45,000 shareholders, 8,000 of whom reside in St. Paul.

Gas Co. Doubles Coke Sales

Coke sales have been doubled by the Spokane Gas Company during the last year and the stage has been reached where the entire plant output will be consumed by Spokane users, according to A. A. Salmon, sales manager.

"A demonstration service was inaugurated which has been of great value in increasing sales," Mr. Salmon said. "We have an expert go out to homes of gas coke users and show customers how to get greatest efficiency.

"Records are kept and the instructor makes an early visit to homes where coke is being used for the first time. By demonstrating the right way to use coke he insures repeat orders and in that manner the demand has been increased almost to plant capacity."

Quigley Issues Booklet

The Quigley Furnace Specialties Co., 26 Cortlandt Street, New York, recently issued an illustrated booklet describing their "Triple A" solutions for preventing corrosion of iron, steel and metals. They state: "It is conceded that corrosion causes one of the greatest wastes in industry today.

"Do you realize that oxidation destroys annually throughout the world about half as much steel as is produced in the United States every year?

"That the world's annual loss from rust has been authoritatively estimated at more than one and one-half billions of dollars?"

The illustration shows what corrosion did to a wrought iron bar. It was used for a brace on copper screens at a gate house of the Baltimore City Water Department and was submerged for a few years with only lead paint for protection.

The crust of rust has been removed at some sections showing only a fragment of the original metal remaining. At the upper end it is entirely eaten through.

Contracts Awarded

The new plant installation is to be made at the Mineral Springs Gas Plant at Winchester, N. Y., and will consist generally of a 12 foot diameter hopper bottom cone top U. G. I. water gas apparatus, together with Model "B" automatic control and U. G. I. barring down machine.

Installed with the water gas set will be a U. G. I. vertical waste heat boiler built for working pressure of 160 pounds. There will also be installed a tower scrubber and tar separator.

This plant will be in service about January 1st.

Due to the success attending the use of the Pier Process, the Public Service Electric & Gas Company of New Jersey has determined upon its use and has placed an order with the U. G. I. Contracting Company of Philadelphia, which controls this process, for an installation to be made at its Paterson, N. J., plant. The use of the Pier Process makes possible successful and economical use of 100 per cent bituminous coal in water gas manufacture.

New Heating Principle in Gas Water Heating

The Niagara Water Heater Co., Inc., Buffalo, N. Y., recently issued a folder describing the Birtch Indirect Water Heater. They state that their heater constitutes a "revolutionary heating principle in gas water heaters."

They further state: "The water in the heating coils never leaves the heater. Water is circulated through the heating coil and rises by thermo syphon movement into one of the two interwoven upper or radiating coils connected with the top of the heating coil. These radiating coils are immersed in the tank of water to be heated. Rising through this coil, the water gives up most of its heat to the surrounding cooler water. At the top of its rise, it passes through the brass air relief valve connecting the ends of these coils and into the second coil, giving up the rest of its heat to the surrounding water as it passes downward and into the cold water inlet of the heating coil. This cycle is continuously repeated within the coils until the thermostat closes off the main burner. By this method of constantly circulating the same water through these coils no lime or dirt collects in the heating coils. Should the pilot become extinguished by draft, jar or a break in the supply of gas, the safety control will automatically close the gas line to the main burner."

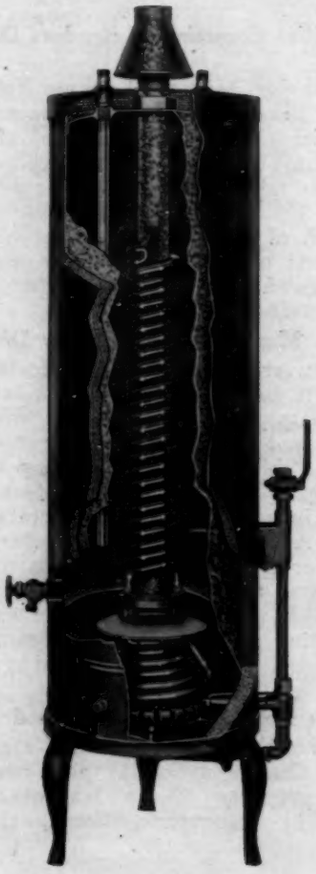



Illustration shows how indirect heating unit is placed in heater.